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EXAMINER	
BERNSHTEYN, MICHAEL	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
10/08/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/531,467	KAWAI ET AL.	
	Examiner	Art Unit	
	MICHAEL M. BERNSHTEYN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9-14 and 16-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7,9-14 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action follows a response filed on August 4, 2008. Claims 1 and 19 have been amended; no claims have been cancelled or added.

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 4, 2008 has been entered.

3. In view of amendment(s) and remarks the rejection of claim 19 under 35 U.S.C. 112, 2nd paragraph, the rejection of claims 1, 3-7, 9-14 and 16-19 under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. (JP 2002-256128) in view of Sakamoto (U. S. Patent 5,726,268), and the rejection of claims 1, 3-7, 9-14 and 16-19 under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. (WO 02/39153) in view of Hasegawa et al. (JP 60-258219) have been withdrawn.

4. Applicant's arguments with respect to claims 1, 3-7, 9-14 and 16-19 have been considered but are moot in view of the new ground(s) of rejection.

5. Claims 1, 3-7, 9-14, and 16-19 are active.

Claim Rejections - 35 USC § 103

6. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

7. Claims 1, 3-7, 9-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. (JP 2002-256128) in view of Sakamoto (U. S. Patent 5,726,268).

With regard to the limitations of claims 1, 3-7 and 16-19, Masuda discloses methacrylic resin composition with inorganic particles, which are selected from the group consisting of **silica, titanium oxide, barium sulfate, calcium carbonate, methacrylic resin, styrene resin, and silicone resin**, or two sorts or more (page 2, [claim 2]). The composition contains 100,000-1,000,000 fine particles having particles size of **0.5-1.0 μm**, which is within the claimed ranges. The composition is suitable for producing a backlight of a homogeneous liquid crystal display exhibiting a high luminance and a low unevenness in luminance (abstract). Masuda discloses that **methyl methacrylate polymer** comprising methyl methacrylate units as a primary component, preferably not less than 70% by weight. Methyl methacrylate units may partially be replaced by a **monofunctional unsaturated monomer** unit, which is copolymerizable with methyl methacrylate. The content of the copolymerizable, monofunctional unsaturated monomer unit in the polymer is preferably **not less than 0.2% by weight**, which is within the claimed range ("less than 5%"). Examples of copolymerizable, monofunctional unsaturated monomer which forms the monofunctional unsaturated monomer unit include: **2-ethylhexyl methacrylate**, 2-hydroxyethyl methacrylate, butyl methacrylate, benzyl methacrylate, **methyl acrylate, ethyl acrylate, propyl acrylate, butyl acrylate,** etc. Example of the **polyfunctional methacrylate**

includes **ethylenedlycol dimethylacrylate**, neopentyl glycol methacrylate, etc. (page 4, [0013]).

With regard to the limitations of claims 1 and 19 concerning a light incidence plane, Masuda discloses that the **edge light method** using the transparent material which has arranged the light source on the side face as structure of such the surface light source (pages 2-3, [0003]).

With regard to the limitations of claims 1, Masuda does not disclose that the content of ethylenedlycol dimethylacrylate in the mixture is in the amount of 0.15 to 2 parts per 100 parts by weight of the polymerizable material.

Sakamoto exemplifies that the content of the monofunctional acrylate is within the claimed range (example 1, col. 7, line 64 through col. 8, line 9): the polymerizable material contains, by weight: 96 parts of methyl methacrylate, 4 parts of methyl acrylate, 0.03 parts of ethylene glycol dimethylacrylate, 0.3 parts of lauroyl peroxide, 0.14 parts of n-dodecylmercaptan, 1 part of polysodium methacrylate, and 200 parts of ion-exchanged water; total amount is 301.44, and thus 4 parts of butyl acrylate is 1.33 parts per 100 parts by weight of the polymerizable material, which is clearly within the claimed range as per claims 1, 17 and 18.

Sakamoto discloses that examples of the polyfunctional monomer include: esters of ethylene glycol and of oligomers of ethylene glycol having two or more hydroxyl groups esterified by acrylic acid or methacrylic acid, such as ethylene glycol di(meth)acrylate, diethyene glycol di(meth)acrylate, triethylene glycol di(meth)acrylate, neopentyl glycol methacrylate, etc. The content of the polyfunctional monomer is

generally from 0.02 to 0.3%, which is partly within the claimed range (col. 4, lines 20-43).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the amount of ethylene glycol di(meth)acrylate in the claimed range, as taught by Sakamoto in Masuda's thermoplastic resin composition for the light guiding plate with the reasonable expectation of success because in some cases the monomer which forms the polyfunctional structural unit may act as the polyfunctional chain transfer agent (US'268, col. 4, lines 52-56), and thus to arrive at the subject matter of instant claim 1.

Furthermore, it is noted that instant claim 1 is "product-by-process claim", and it is the examiner's position to believe that the product of combined teaching of Masuda and Sakamoto (see JP'128, drawing 1, page 7 and abstract) is substantially the same as the sheet for light guiding plate comprising a polymer and a particulate diffusing agent recited in claim 1, even though obtained by a different process, consult ***In re Thorpe***, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Since the USPTO does not have proper equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. "[E]ven though product-by-process claims are limited by and defined by the process; determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior

product was made by a different process." ***In re Thorpe***, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

With regard to the limitations of claims 9-14, Masuda discloses the transparent material, which can be produced using the mixture of methacrylic resin and particles by injection molding, extrusion **molding**, etc. which carry out melting kneading and are generally used (page 6, [0020]). The dispersing agent (particle) shown in table 1 was added in examples 1-8 to methacrylic resin, kneading extrusion and the extruded strand were palletized with the extruder with the temperature 240^0C and screw speed 200 rpm (page 6, [0023]-[0026], Table 1, page 8, [0028]).

8. Claims 1, 3-7, 9-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. (WO 02/39153) in view of Sakamoto (U. S. Patent 5,726,268). The U.S. Patent 6,941,056 is equivalent to the WO 02/39153; therefore, the following rejection is based upon the context of U.S. Patent 6,941,056.

With regard to the limitations of claims 1, 6, 7 and 16, Hirota discloses a light guiding plate, characterized by comprising a transparent thermoplastic resin composition containing 1-200 ppm of fine particles having a refractive index of 1.7-3.0 and an average particle diameter of 0.01-1.0 pm, which is within the claimed range (abstract). In the drawing, A indicates a light source (a cold cathode-ray tube), B indicates a lamp house, C indicates a light guiding plate containing fine particles wherein the fine particles are not drawn to scale, D indicates a light reflective sheet, E indicates a light diffusing sheet, and F indicates a prism sheet. FIG. 2 shows a flow chart of an embodiment of the method of forming the light guiding plate (col. 2, lines 43-

50). As the methacrylic resins, there may be used copolymers of methyl methacrylate or ethyl methacrylate with a monomer copolymerizable therewith. The amount of methyl methacrylate or ethyl methacrylate is preferably not less than 70% by weight based on the weight of the copolymer. Examples of the monomer copolymerizable with methyl methacrylate or ethyl methacrylate are methacrylate esters such as butyl methacrylate, ethyl methacrylate, propyl methacrylate, cyclohexyl methacrylate phenyl methacrylate, 2-ethylhexyl methacrylate, etc.; acrylate esters such as methyl acrylate, ethyl acrylate, **butyl acrylate**, cyclohexyl acrylate, phenyl acrylate, 2-ethylhexyl acrylate, etc. (col. 2, line 66 through col. 3, line 14).

With regard to the limitations of claim 1, Hirota does not disclose the usage of ethyleneglycol di(meth)acrylate in the amount of from 0.15 to 2 parts per 100 parts by weight of the polymerizable material.

Sakamoto discloses that examples of the polyfunctional monomer include: esters of ethylene glycol and of oligomers of ethylene glycol having two or more hydroxyl groups esterified by acrylic acid or methacrylic acid, such as **ethylene glycol di(meth)acrylate**, diethyene glycol di(meth)acrylate, triethylene glycol di(meth)acrylate, neopentyl glycol methacrylate, etc. The content of the polyfunctional monomer is generally from 0.02 to 0.3%, which is partly within the claimed range (col. 4, lines 20-43).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate ethylene glycol di(meth)acrylate in the adjusted amount, as taught by Sakamoto in Hirota's thermoplastic resin composition for

the light guiding plate because the monomer which forms the polyfunctional structural unit may act as the polyfunctional chain transfer agent (US'268, col. 4, lines 52-56), and thus to arrive at the subject matter of instant claim 1.

With regard to the limitations of claims 1 and 17-18, Hirota does not disclose the content of the monofunctional acrylate in the polymerizable material.

Sakamoto discloses that examples of copolymerizable, monofunctional unsaturated monomer which forms the monofunctional unsaturated monomer unit include: methacrylates, such as ethyl methacrylate, propyl methacrylate, butyl methacrylate, and benzyl methacrylate; acrylates, such as methyl acrylate, ethyl acrylate, propyl acrylate, butyl acrylate, 2-ethylhexyl acrylate, etc. (col. 2, lines 45-67). Furthermore, Sakamoto exemplifies that the content of the monofunctional acrylate is within the claimed range (example 1, col. 7, line 64 through col. 8, line 9): the polymerizable material contains, by weight: 96 parts of methyl methacrylate, 4 parts of methyl acrylate, 0.03 parts of ethylene glycol dimethylacrylate, 0.3 parts of lauroyl peroxide, 0.14 parts of n-dodecylmercaptan, 1 part of polysodium methacrylate, and 200 parts of ion-exchanged water; total amount is 301.44, and thus *4 parts of butyl acrylate is 1.33 parts per 100 parts by weight of the polymerizable material*, which is clearly within the claimed range as per claims 1, 17 and 18.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the content of the monofunctional acrylate in the polymerizable material in the claimed range, as taught by Sakamoto in Hirota's thermoplastic resin composition in order to provide an improved methacrylate resin

having a high melt flow property under high shear rate condition, which determines the extrusion properties or injection molding properties, while maintaining a normal level for reduced viscosity used as a general index of molecular weight. The methacrylate resin further possesses preferable melt tension as well as having excellent heat resistance, chemical resistance, and mechanical properties, which seem to compete with the melt flow property (US'268, col. 1, lines 58-67), and thus to arrive at the subject matter of instant claim 1, 17 and 18.

With regard to the limitations of claims 1 and 19 concerning a light incidence plane, Hirota discloses that edge-light type in which a light source is provided at the side edge portions of the light guiding plate, and at present the edge-light type is mainly employed. Especially, with recent strong demands for high luminance display devices, large-sized display devices and thin display devices, luminous devices have been developed under the conception of making lighter, larger and thinner devices, and, among them, high luminance face luminous devices of edge-light type are especially desired (col. 1, lines 28-37).

With regard to the limitations of claims 3 and 4, Hirota discloses that the fine particles have no special limitations, and examples thereof are aluminum trioxide, titanium dioxide, etc. (col. 5, lines 29-33).

With regard to the limitations of claim 5, Hirota discloses that as the transparent thermoplastic resin contained in the transparent thermoplastic resin composition, mention may be made of methacrylic resins, polycarbonate resins, styrene resins, cyclic olefin resins, amorphous polyesters, etc. Preferred are methacrylic resins,

polycarbonate resins and cyclic olefin resins, and more preferred are methacrylic resins (col. 2, lines 59-65).

With regard to the limitations of claims 9-14, Hirota discloses that the method for producing the transparent thermoplastic resin composition has no special limitation as far as the fine particles are uniformly dispersed in the transparent thermoplastic resin. However, preferably, the fine particles are previously uniformly dispersed in an organic liquid and the transparent thermoplastic resin composition is produced using the resulting dispersion. That is, for producing the transparent thermoplastic resin composition constituting the light guiding plate, it is preferred to uniformly disperse the fine particles in the transparent thermoplastic resin by previously dispersing the fine particles in an organic liquid. Furthermore, for uniformly dispersing the fine particles in the organic liquid, it is preferred to use an ultrasonic wave generating apparatus (col. 5, lines 42-55). As methods for uniformly dispersing the fine particles in the transparent thermoplastic resin in the production of the transparent thermoplastic resin composition containing the transparent thermoplastic resin and the fine particles, the following methods can be exemplified (see col. 6, line 12 through col. 7, line 14).

Hjirota also discloses that the method for molding the light guiding plate has no special limitation, and there may be employed known methods, for example, (1) a method of molding the transparent thermoplastic resin composition to a sheet by a sheet molding extruder or a press molding machine, cutting the resulting sheet to a desired size, and subjecting the cut surface to abrasive working, (2) a method of molding the transparent thermoplastic resin composition by an injection molding

machine having a mold, and (3) a method of dispersing the fine particles in a syrup containing a starting monomer for the transparent thermoplastic resin or a partial polymer, then polymerizing the monomer or the partial polymer by a casting method to obtain a sheet-like molded article, then cutting it to a desired size, and subjecting the cut surface to abrasive working. In case the light guiding plate is obtained by molding the transparent thermoplastic resin composition by a sheet molding extruder, a press molding machine, an injection molding machine having a mold, etc., from operational and economical view points, there may be employed a method including the steps of preparing a master batch pellet which has a higher concentration of the fine particles in the thermoplastic resin composition than the desired concentration and diluting to the desired concentration with transparent thermoplastic resin at the time of molding (col. 7, line 64 through col. 8, line 21).

With regard to the limitations of claim 19, Hirota discloses that as the back-lighting systems, there are generally used two systems of so-called direct-light type in which the light guiding plate is interposed between a light source and a liquid crystal unit, and edge-light type in which a light source is provided at the side edge portions of the light guiding plate, and at present the edge-light type is mainly employed. Especially, with recent strong demands for high luminance display devices, large-sized display devices and thin display devices, luminous devices have been developed under the conception of making lighter, larger and thinner devices, and, among them, high luminance face luminous devices of edge-light type are especially desired (col. 1, lines 25-37).

Response to Arguments

9. Applicants traverse the rejections of claims 1, 3-7, 9-14, and 16-19. Applicant's arguments have been fully considered but they are not persuasive.

10. It appears that the focal Applicants argument resides in the contention that Masuda (at par. [0013]) neither teaches nor suggest combining a monofunctional acrylate together with a polyfunctional (meth)acrylate, let alone combining a monofunctional acrylate with ethyleneglycol dimethacrylate. That Masuda would not lead one skilled in the art to the required combination is evidenced by the fact that Masuda's examples do not employ any polyfunctional (meth)acrylate, let alone ethyleneglycol dimethacrylate (page 7, 1st paragraph). Furthermore, applicants contend that Masuda discloses forming materials using injection or extrusion molding (see par. [0020]) instead of forming the polymers through polymerization in a mold (pages 8-9, the bridging paragraph).

11. As it was already mentioned in the previous Office actions dated on February 6, 2008, it is noted that instant claim 1 is “product-by-process claim”, and it is the examiner’s position to believe that the product of combined teaching of Masuda and Sakamoto (see JP’128, drawing 1, page 7 and abstract) is substantially the same as the sheet for light guiding plate comprising a polymer and a particulate diffusing agent recited in claim 1, even though obtained by a different process, consult ***In re Thorpe***, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since the USPTO does not have proper equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. "[E]ven though product-by-process claims are limited by

and defined by the process; determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." ***In re Thorpe***, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

12. In response to applicant's argument that nowhere does Masuda teach or suggest that the content of the monofunctional acrylate in the polymerizable material should be 5 % by weight or less and the content of the ethyleneglycol dimethacrylate should be within the very narrow range of 0.15 to 2 parts per 100 parts by weight of the polymerizable material (page 7, 3rd paragraph), please, see paragraph 7 of current Office action.

13. In response to applicant's arguments that the calculations at pages 12-13, par. 14 of the Office Action are incorrect (pages 7-8, the bridging paragraph), it is noted the following: 1) these calculations were based on Sakamoto's reference, not Masuda's reference, 2) please, see paragraphs 7 and 8 of current Office action with detailed explanations.

14. In response to applicant's argument that the references fail to show certain features of applicant's invention (page 8, 1st paragraph), it is noted that the features upon which applicant relies (i.e., improved processability, for example, cutting and polishing usage) are not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

15. In response to applicants arguments that Sakamoto neither teaches nor suggests that ethyleneglycol dimethacrylate must be present and Sakamoto neither teaches nor suggests that monofunctional acrylate must be present in an amount less than or equal to 5% (page 9), please, see paragraphs 7 and 8 of current Office action.

16. In response to applicants arguments regarding Hasegawa's reference (pages 10-11), it is noted that arguments have been fully considered and they are persuasive. Therefore, the rejection based on Nasegawa's reference has been withdrawn.

17. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael M. Bernshteyn/
Examiner, Art Unit 1796

/M. M. B./
Examiner, Art Unit 1796